



SHILAP Revista de Lepidopterología

ISSN: 0300-5267

avives@eresmas.net

Sociedad Hispano-Luso-Americana de
Lepidopterología
España

Seven, S.; Gençer, L.

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Kuznetsov & Tristan, 1985 (Lepidoptera: Gracillariidae)

SHILAP Revista de Lepidopterología, vol. 37, núm. 148, diciembre, 2009, pp. 511-514

Sociedad Hispano-Luso-Americana de Lepidopterología

Madrid, España

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Contribution to the biology and distribution of the leaf-mining moth *Micrurapteryx sophorivora* Kuznetzov & Tristan, 1985 (Lepidoptera: Gracillariidae)

S. Seven & L. Gençer

Abstract

In this study, the taxonomical status, biology and distribution of *Micrurapteryx sophorivora* Kuznetzov & Tristan, 1985 recorded from Turkey, is discussed. In addition to other known larval host plant of the species, *Robinia pseudoacaciae* L. is newly given.

KEY WORDS: Lepidoptera, Gracillariidae, *Micrurapteryx sophorivora*, genitalia, morphology, biology, parasitoids, Turkey.

Contribución a la biología y distribución del minador *Micrurapteryx sophorivora* Kuznetzov & Tristan, 1985 (Lepidoptera: Gracillariidae)

Resumen

En este estudio, se discute el estatus taxonómico de *Micrurapteryx sophorivora* Kuznetzov & Tristan, 1985 registrado de Turquía, así como su biología y distribución. Se añade como nueva planta nutricia de esta especie, *Robinia pseudoacaciae* L..

PALABRAS CLAVE: Lepidoptera, Gracillariidae, *Micrurapteryx sophorivora*, genitalia, morfología, biología, parasitoides, Turquía.

Introduction

The genus *Micrurapteryx* was erected by SPULER (1910) and VÁRI (1961) subsequently designated *Gracillaria kollariella* Zeller, 1847 as type species. 10 species of this genus are known in the world (DE PRINS & DE PRINS, 2005), of which eight occur in the Palearctic region (KUZNETZOV & BARYSHNIKOVA, 2001). Several *Micrurapteryx* species are known to be pests of legume crops grown for decorative or medicinal use (KUZNETZOV & MARTYNOVA, 1954; TOMILOVA, 1973). A species of this genus was described by AMSEL (1935) from Lebanon. New species were determined by KUZNETZOV (1979) and ERMOLAEV (1982) and diagnosis of individual new species were given in their studies. KUZNETZOV (1981) gave 3 European species with their identification keys and male genital structures in his study. Including the new species they identified, KUZNETZOV & TRISTAN, (1985) reviewed 8 species in the revision of the genus *Micrurapteryx*. This genus is represented in Turkey by *Micrurapteryx kollariella* (KOÇAK & SEVEN, 2003).

Larvae of the taxons belonging to this genus firstly eat the lower epidermis of the leaves, forming snake-shaped galleries, then they move to the upper part of the leaves and bore the whole upper

surface, creating stain-like displays. In laboratory conditions, caterpillars at early and advanced stages proceed to another leaf and continue to bore. Pupation takes place within the mine in a filmy cocoon outside the galleries (KUZNETSOV & TRISTAN, 1985).

In this study, moth specimens obtained from gallery bearing *Robinia pseudoacaciae* leaves, collected in the province of Malatya are examined and *Micrurapteryx sophorivora* is recorded as a new leaf-mining pest of *Robinia pseudoacaciae* L. for Turkey. As a contribution to the biology of the species, information on larva food plant and feeding pattern is given. In addition, the taxonomical status of the species is discussed, with illustrations of the adult and male genitalia.

Materials and Methods

In this study, in 2004, gallery-bearing *Robinia pseudoacaciae* L. (Fabaceae) leaves from the province of Malatya were collected and kept in plastic culture containers at 25C and 70% humidity in the laboratory by the second author, moth specimens obtained were prepared and labelled according to museum methods by the first author. Specimens were identified by comparison of their male genital samples prepared by the first author following relevant literature.

Results and Discussion

GRACILLARIIDAE

Micrurapteryx sophorivora Kuznetsov & Tristan, 1985

Micrurapteryx sophorivora Kuznetsov & Tristan, 1985, *Ent. Obozr.*, **64**(1): 181-184, figs. 4-5

Type locality: Kyrgyzstan

Specimens Examined: Turkey, Malatya Province, Kuluncak District, Karabük köyü, 26-VIII-2004, 49 ♂♂ and ♀♀ (GP2051 ♂).

Habitat: Bushes dominated by *Robinia pseudoacaciae* in the vicinity of fruit trees.

Host Plants: *Sophora* sp. (Fabaceae) (KUZNETSOV & TRISTAN, 1985); *Robinia pseudoacaciae* L. (Fabaceae) (new record).

Parasitoids: Chalcidoidea: *Baryscapus nigroviolaceus*, *Cirrospilus pictus*, *Necremnus croton*, *Neochrysocharis arvensis*, *N. formosa*, *Pnigalio* sp, *Pteromalus* sp. (GENÇER & SEVEN, 2005).

Adult: Wing span 9-10 mm. Head: vertex, frons and thorax white. Forewings ash brown with a clear and distinct black apical spot and 5-7 distinguishable white costal streaks.

Male genitalia (Figure 1): Valva broadly cleft and apically divided in two. The piece on top (cucullus) not fully chitinized and with a varying number of deep indentations on the outer edge of the sharp part. Sacculus has a fully chitinized pointing projection in the subterminal ventral edge. Aedeagus with two in conspicuous denticles subapically and vesica with a long transparent cornutus. Abdominal androconial scales made up of lanceolate scales.

Biological notes: It is seen in the field that galleries on the leaves of *Robinia pseudoacaciae* are widespread. 49 adult moths were obtained from the gallery-bearing leaves collected. Some larva samples are observed to die before entering pupation due to the withering of the leaves and thus inadequacy of food. In addition, some larvae are recorded to



Figure 1.– Male genitalia of *Micrurapteryx sophorivora* Kuznetsov & Tristan, 1985.

have parasites (GENÇER & SEVEN, 2005). Larvae, which are abundant, are found to feed on the lower surface epidermis of the leaves by forming snake-like curved galleries in the early stages. In following stages they proceed to the upper surface epidermis and damage it by creating stain-like galleries all over the leaf. Larvae are observed to leave the galleries in the prepupal stage to form pupae on the leaf surface. However, some specimens became pupae in the culture containers. *Robinia pseudoacaciae* is a new host plant for this taxon.

General Distribution: Kazakhstan: Alma-Ata, Russia, Tajikistan, Turkey (KUZNETZOV & TRISTAN, 1985; PUPLESIS *et al.*, 1996; GENÇER & SEVEN, 2005; DE PRINS & DE PRINS, 2005).

Remarks: *Micrurapteryx sophorivora* can easily be differentiated from other species by its conspicuous black apical spot and especially by its male genitalia that the valva divides into two at the tip. The specimens we have are classified as species *M. sophorivora* because their valva divides into two at the tip. In the study that describes the species (KUZNETZOV & TRISTAN, 1985) the cucullus is stated to have a few small teeth on its downward pointing tip but this characteristic is not illustrated. Nevertheless, the tooth-like splits on the outer edge of the pointed tip of the cucullus of male genitalia are the most obvious characteristics of the specimens we have. *M. sophorivora*'s rarity only in Kazakhstan and the three record being from Turkey brings along the question of whether the structures that are explained above but not seen in the illustrations are really important differences or just a variation of the species in its distribution. The actual status of the species will be understood after following studies are performed and new specimens are collected from areas not yet researched. Collected specimens are attributed to *Micrurapteryx sophorivora* for now according to recent data. This species is a new leaf-mining pest for *Robinia pseudoacaciae* L.. With this study, the number of species of the genus *Micrurapteryx* increases to two in Turkey.

Acknowledgements

We would like to thank Yrd. Doç. Dr. Erol Dönmez (Cumhuriyet University.), who identified the larval food plant.

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S. S.*
Gazi University
Faculty of Science and Literature
Biology Department
TR-06500 Ankara
TURQUÍA / TURKEY
E-mail: selma@gazi.edu.tr
E-mail: s_seven@lycos.com

L. G.
Cumhuriyet University
Faculty of Science and Literature
Biology Department
TR-58140 Sivas
TURQUÍA / TURKEY
E-mail: gencer@cumhuriyet.edu.tr

* Autor para la correspondencia / *Corresponding author*

(Recibido para publicación / *Received for publication* 22-VII-2009)

(Revisado y aceptado / *Revised and accepted* 2-IX-2009)

(Publicado / *Published* 30-XII-2009)